

We Claim:

1. A suction pad for use in a heart positioning device, the suction pad being formed of resiliently flexible material and having at least three outwardly extending legs that flex to conform to the surface of the heart, the suction pad having at least one vacuum passageway in fluid communication with the legs to apply suction between the legs and the surface of the heart, wherein the suction pad is integrally molded of substantially elastomeric material, the suction pad including a flange extending along the legs to seal between the legs and the surface of the heart, the flange being deformable as suction is applied between the legs and the surface of the heart.

2. The suction pad according to claim 1 wherein the suction pad has a configuration with the outwardly extending legs joined together at one end to form a central portion from which the legs radially extend.

3. The suction pad according to claim 1 wherein the legs are configured and sufficiently flexible that they can be drawn against one another to a collapsed position for passing through a small incision, cannula or port.

4. The suction pad according to claim 1 wherein the vacuum passageway has at least one orifice, the suction pad further including at least one tissue engaging structure adjacent the orifice to prevent the orifice and tissue being drawn together to close the orifice, thereby maintaining fluid communication with the vacuum passageway.

5. The suction pad according to claim 4 wherein the suction pad has a tissue-engaging porous mesh positioned on the tissue-engaging structure and in fluid communication with the vacuum passageway.

6. The suction pad according to claim 5 wherein the mesh is formed of a metallic, ceramic or polymeric material.

7. The suction pad according to claim 7 wherein at least a portion of the mesh extends into each of said legs.

8. The suction pad according to claim 1 wherein the deformable flange includes an inner surface having a texture that tends to grip the surface of the heart when suction is drawn through the vacuum passageway.

9. The suction pad according to claim 8 wherein the texture comprises a plurality of bumps formed along the inner surface of the peripheral flange.

10. A suction pad for use in a heart positioning device, the suction pad having at least three outwardly extending legs that flex to conform to the surface of the heart and having a flange extending along the legs to seal between the legs and the surface of the heart, the suction pad having at least one vacuum passageway in fluid communication with the legs to apply suction between the legs and the surface of the heart, whereby the flange may deform as suction is applied between the legs and the surface of the heart.

11. The suction pad according to claim 10 wherein the suction pad has a configuration with the outwardly extending legs joined together at one end to form a central portion from which the legs radially extend.

12. The suction pad according to claim 10 wherein the legs are configured and sufficiently flexible that they can be drawn against one another to a collapsed position for passing through a small incision, cannula or port.

13. The suction pad according to claim 10 wherein the vacuum passageway has at least one orifice, the suction pad further including at least one tissue engaging structure adjacent the orifice to prevent the orifice and tissue being drawn together to close the orifice, thereby maintaining fluid communication with the vacuum passageway.

14. The suction pad according to claim 13 wherein the suction pad has a tissue-engaging porous mesh positioned on the tissue-engaging structure and in fluid communication with the vacuum passageway.

15. The suction pad according to claim 14 wherein the mesh is formed of a metallic, ceramic or polymeric material.

16. The suction pad according to claim 15 wherein at least a portion of the mesh extends into each of said legs.

17. The suction pad according to claim 10 wherein the deformable flange includes an inner surface having a texture that tends to grip the surface of the heart when suction is drawn through the vacuum passageway.

18. The suction pad according to claim 17 wherein the texture comprises a plurality of bumps formed along the inner surface of the peripheral flange.

19. A suction pad for use in a heart positioning device, the suction pad having at least three outwardly extending legs joined together to form a central portion from which the legs radially extend such that the legs may flex to conform to the surface of the heart and a peripheral sealing portion on at least a portion of each leg for contacting the surface of the heart, the suction pad having at least one vacuum passageway in fluid communication with the legs to apply suction between the legs and the surface of the heart, whereby the sealing portion of each leg may deform as suction is applied between the legs and the surface of the heart.

20. The suction pad according to claim 19 wherein the legs are configured and sufficiently flexible that they can be drawn against one another to a collapsed position for passing through a small incision, cannula or port.

21. The suction pad according to claim 19 wherein the vacuum passageway has at least one orifice, the suction pad further including at least one tissue engaging structure adjacent the orifice to prevent the orifice and tissue being drawn together to close the orifice, thereby maintaining fluid communication with the vacuum passageway.

22. The suction pad according to claim 21 wherein the suction pad has a tissue-engaging porous mesh positioned on the tissue-engaging structure and in fluid communication with the vacuum passageway.

23. The suction pad according to claim 22 wherein the mesh is formed of a metallic, ceramic or polymeric material.

24. The suction pad according to claim 22 wherein at least a portion of the mesh extends into each of said legs.

25. The suction pad according to claim 19 wherein the peripheral sealing portion includes an inner surface having a texture that tends to grip the surface of the heart when suction is drawn through the vacuum passageway.

26. The suction pad according to claim 25 wherein the texture comprises a plurality of bumps formed along the inner surface of the peripheral sealing portion.

27. A suction pad for use in a heart positioning device, the suction pad having at least three outwardly extending legs joined together to form a central portion from which the legs radially extend such that the legs may flex to conform to the surface of the heart and such that the legs can be drawn toward the central portion and against one another to a collapsed position, the suction pad also having a peripheral sealing portion on at least a portion of each leg for contacting the surface of the heart, the suction pad also having at least one vacuum passageway in fluid communication with the legs to apply suction between the legs and the surface of the heart.

28. The suction pad according to claim 27 wherein the legs can be drawn to a collapsed position for passing through a small incision, cannula or port.

29. The suction pad according to claim 27 wherein the vacuum passageway has at least one orifice, the suction pad further including at least one tissue engaging structure

adjacent the orifice to prevent the orifice and tissue being drawn together to close the orifice, thereby maintaining fluid communication with the vacuum passageway.

30. The suction pad according to claim 29 wherein the suction pad has a tissue-engaging porous mesh positioned on the tissue-engaging structure and in fluid communication with the vacuum passageway.

31. The suction pad according to claim 30 wherein the mesh is formed of a metallic, ceramic or polymeric material.

32. The suction pad according to claim 31 wherein at least a portion of the mesh extends into each of said legs.

33. The suction pad according to claim 27 wherein the peripheral sealing portion includes an inner surface having a texture that tends to grip the surface of the heart when suction is drawn through the vacuum passageway.

34. The suction pad according to claim 25 wherein the texture comprises a plurality of bumps formed along the inner surface of the peripheral sealing portion.